

# People and Management

Livermore's most valuable asset is its workforce. The Laboratory stays vibrant by attracting and retaining a high-quality workforce motivated by "passion for mission" and dedicated to excellence. Highly motivated individuals and exceptional multidisciplinary team efforts are responsible for achieving program goals in 2005, advancing science and technology, and continually improving operations. Laboratory staff are carrying forward a long tradition of scientific and technological innovation to meet pressing national needs. The strength of the current workforce is demonstrated by the many awards for scientific accomplishments and quality operations.

Strong ties to world-class research universities—and in particular many partnerships with the various campuses of the University of California (UC)—serve as a vehicle for bringing new talent to the Laboratory. Much of Livermore's work requires special skills. Scientists and engineers gain essential expertise through years of training, working with senior staff, and access to unique computational and experimental capabilities. The Laboratory's continuing success depends on providing employees with abundant career development opportunities, a quality work environment, and the chance to work on projects that make a difference to the nation.

Livermore's long-standing ties with UC have also fostered a tradition of intellectual independence and integrity, as well as a focus on the long-term interests of the nation. Laboratory researchers strive to anticipate future national needs and security threats. Science and technology investments and exploratory research and development efforts are targeted accordingly. Visionary technical leadership and effective management of research programs and operations underpin Livermore's achievements and sustain public trust in the Laboratory.



## Contract Competition for Los Alamos and Livermore

The University of California has managed and operated Berkeley, Livermore, and Los Alamos national laboratories on behalf of the federal government since their inception. The University has provided the stable, special environment that has enabled the laboratories to make many remarkable scientific achievements and vital contributions to national security. In 2003, the Department of Energy (DOE) announced its intention to open the management of Los Alamos to full competition at the expiration of the current contract. Subsequent congressional legislation required that the management contracts for all three UC-managed national laboratories be subject to open competition.

In April 2005, DOE awarded a new five-year contract to UC to manage and operate the Lawrence Berkeley National Laboratory. In May, the University announced that Livermore director Michael Anastasio would lead a team—the Los Alamos National Security LLC, or LANS—to compete for the Los Alamos contract. Partners in LANS are Bechtel National, Inc., UC, BWX Technologies, Inc., and the Washington Group International, Inc. Anastasio continued to serve as director of Livermore during the competition. In December, DOE Secretary Samuel W. Bodman announced the selection of LANS as the management and operations contractor for Los Alamos National Laboratory. The transition to LANS management is under way, and the new contract begins on June 1, 2006.



**Selected to lead the competition team, Michael Anastasio will become director of Los Alamos National Laboratory when the new contract begins in June 2006.**

leadership team for the Laboratory in early 2006. Director Michael Anastasio left to lead LANS, and Wayne Shotts, deputy director for Operations, retired in January 2006 after 31 years of service to the Laboratory.

In March 2006, George Miller was selected interim director of the Laboratory by the UC Board of Regents. He is expected to serve through the remainder of the University's current contract to manage the Laboratory. In his 34-year career at Livermore, Miller worked as a nuclear weapons designer for 12 years before being appointed deputy associate director for Nuclear Design in 1984. Since then he has served as associate director for a range of directorates, including Defense Systems, Nuclear Design,

The UC contract to manage and operate Livermore has been extended to September 30, 2007. The UC Board of Regents has not made a final decision whether to compete for the Livermore contract, but it has authorized the University to begin preparations for the competition. As UC President Robert Dynes stated in January 2006, "Should we compete, we will do so vigorously and with the firm belief that excellence in science and technology is critical to the mission of the Laboratory."

## Laboratory Management Changes

Departures from the Director's Office set the stage for the introduction of a new



**When Energy Secretary Samuel W. Bodman (second from left) visited NIF in August, he was joined by (from left) George Miller, now director; Michael Anastasio; and NIF associate director Ed Moses.**

National Security, Defense and Nuclear Technologies, and the National Ignition Facility; most recently, he was associate director at large. Miller also spent a year in Washington, D.C., as special scientific advisor on weapons activities to the secretary of Energy.

Appointments during 2005 brought many new faces into the Laboratory's senior management team. Ed Moses became associate director for National Ignition Facility (NIF) Programs after acting in that position when George Miller became associate director at large in May 2005. Prior to the appointment, Moses served as project manager for NIF. Later in May, Linda Rakow, with almost 20 years of service to the Laboratory, was named chief financial officer for Livermore. In June, Ray Juzaitis was named to lead the Nonproliferation, Arms Control, and International Security Directorate, and

Melissa M. Allain became the Laboratory counsel. Juzaitis brings to the directorate 28 years of experience in nuclear weapons design and defense technologies from positions at Los Alamos and Livermore. Allain comes to Livermore from Tyco Fire & Security, where she served as chief compliance counsel.

The management team will build on planning activities—including the Aurora Project in 2005 and a senior management special meeting in early 2006—which developed the Laboratory's *A List* of priorities for the coming year. In addition, the Strategic Program Board and the Performance Assurance Board, consisting of key senior managers, were formed to assist the director in setting goals, formulating strategies, and overseeing the execution of high-priority institutional initiatives.

Ongoing activities with UC campuses (see p. 43) and other major research universities act as a pipeline to fulfill ongoing needs for critical skills and greater diversity. One of many special opportunities for graduate and undergraduate students is the Department of Homeland Security (DHS) Scholars and Fellows Program, which places outstanding young scholars at national laboratories for 10 weeks during the summer. Of the 105 award recipients in 2005, 25 students identified Lawrence Livermore as their first-choice laboratory. Altogether, Livermore is host to over 500 summer students who work side by side with Laboratory scientists.

The Laboratory's continuing success also depends on developing future leaders. Livermore's comprehensive programs aimed at leadership and management development are recognized as among the "best in class" within the UC system and the DOE complex. The core program includes two training courses for supervisors, a Management Institute designed to help prepare next-generation leaders, and a variety of short courses. Nearly 1,800 supervisors have been trained to date, and there are 150 alumni of the Management Institute, a two-and-a-half-day program presented by Laboratory senior managers. In addition, more than 740 employees have participated in customized leadership development programs in the Laboratory's directorates.

Livermore uses staff feedback to improve leadership development programs, and improved database systems are helping

## Attention to Workforce Management

The Laboratory established a Workforce and Communications Working Group with institutional oversight to ensure that Livermore retains and continues to attract the talent it needs for the future. Special emphasis is being given to effective management of recruitment and retention challenges that may arise during the upcoming competition for a new contractor to manage the Laboratory. At the same time, Livermore is working toward creating a more diverse and inclusive workplace. Exciting career opportunities and an inclusive, collegial work environment are key to effective recruitment and retention.





Then-Laboratory director Michael Anastasio (left) and Representative Ellen Tauscher (10th District, California, center) visited with DHS interns, who spent the summer working alongside Laboratory scientists.

Laboratory management gauge success. Tracking data, for example, indicates that programs are reaching an increasingly diverse pool, positioning more women and minorities to become supervisors and future Livermore leaders. In addition, nearly 50 Laboratory employees each year participate in diversity leadership programs, including American Management Association Leadership Training for African Americans, Latino Leadership and Development, and Leadership Education for Asian Americans. In partnership with the Museum of Tolerance, the Laboratory has developed a unique program to help managers increase their interpersonal and cross-cultural competencies.

In 2005, the Laboratory completed the next steps in its Integrated Pay and Performance Program (IPPP). A newly restructured classification and pay system for administrative and specialist staff more closely aligns Laboratory pay with the marketplace. The classification system for management personnel was also redesigned. IPPP is the largest revision of Livermore's performance appraisal, ranking, and pay system in the last two decades. The program aims to be less complex than previous performance management approaches and to ensure greater consistency throughout the Laboratory.

## People and Programs in the News

The scientific and technological accomplishments of Livermore employees are recognized by prizes, awards, and front-page publicity. But science isn't the whole story at Lawrence Livermore. Many other individuals and teams are also recognized for their contributions both inside and outside the Laboratory.

Laboratory scientists and engineers were responsible for 136 invention disclosures, 128 U.S. patent applications, 24 first foreign patent applications, 93 issued U.S. patents, and 14 issued foreign patents in fiscal year 2005.

Max Tabak (right), lead inventor of fast ignition for inertial confinement fusion (ICF), and Joseph Kilkenney, leader of the ICF program in 1995, were winners of the Edward Teller Medal. The American Nuclear Society lauded Tabak as an effective mentor and group leader, whose team has made major contributions to a range of topics in inertial confinement fusion and high-energy-density physics. Kilkenney is now vice president for Inertial Fusion Technology at General Atomics in San Diego and associate director for Science and Technology at the Laboratory for Laser Energetics of the University of Rochester.



Climate scientist Benjamin Santer won one of four

DOE Office of Biological and Environmental Research Program Distinguished Scientist fellowships.

Laboratory researchers garnered four R&D 100 awards among the 100 granted by *R&D Magazine* for the top industrial innovations worldwide. Livermore's total now stands at 106 awards since 1978. The 2005 awards were for:

- The Biological Aerosol Mass Spectrometer (BAMS), which can identify the presence and concentration of harmful biological particles in air samples.
- The Adaptable Radiation Area Monitor (ARAM), which can detect even small quantities of radioactive materials moving at either very slow speeds or in moving vehicles. Livermore shared the award with Innovative Survivability Technologies of Goleta, California.
- NanoFoil<sup>®</sup>, a nanoengineered heat source for lead-free soldering and brazing of materials at room temperature. Livermore, Reactive NanoTechnologies of Hunt Valley, Maryland, and Johns Hopkins University shared the award.
- VisIt, a visualization software tool for parallel processing of up to trillions of bytes of data.

The American Physical Society selected five Laboratory scientists as Fellows, including:

- John Moriarty, for his work on the first-principles quantum-based calculation of interatomic forces in

d- and f-electron materials, with major impact on high-pressure physics, multiscale modeling, and national security.

- Carlos Iglesias, for the study of the production and transport of radiation in astrophysical and laboratory plasmas, including the development of the OPAL opacity code.
- Harry Radousky, for contributions and scientific leadership in experimental condensed matter and materials physics, with particular emphasis on discoveries related to optical materials, superconductivity, and high-pressure research.
- Vasily Bulatov, for efforts in computational materials science, particularly in the areas of dislocation dynamics and crystal plasticity.
- Joe Wong, for contributions to experimental materials physics, particularly for contributions to x-ray absorption measurement techniques, and for the first measurements of phonon dispersion in plutonium.



The California Section of the American Physical Society has named a student award for Laboratory physicist Kennedy Reed. The Kennedy Reed Award for Best Theoretical

Research was one of five new awards named after distinguished physicists known for their educational outreach. Reed has contributed significantly to the promotion of physics research and education in Africa.

A team of scientists from IBM and the Laboratory won the coveted 2005 Gordon Bell Prize for pioneering materials science simulations conducted on BlueGene/L, the world's fastest supercomputer (see p. 9).

The National Nuclear Security Administration (NNSA) honored three individual scientists and three teams with Weapons Excellence awards for work performed in 2004. The awardees were:

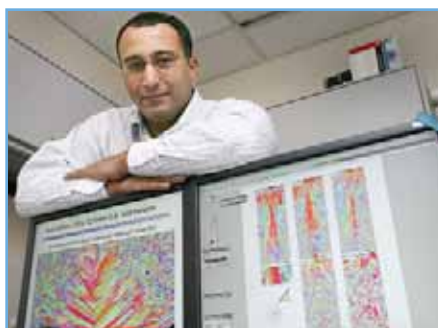
- Thomas Healy, who developed the certification roadmap for the W80-3 Program, which has become a model for future development plans.
- Omar Hurricane, for a computer model that led to the resolution of a long-standing weapons-physics uncertainty.
- Mordecai Rosen, for resolving puzzling nuclear test data anomalies.
- The Livermore Computing TSF Team, for completing the Terascale Simulation Facility and activating it early and on budget.
- The National Hydrotest Plan Team, for significantly increasing the efficiency of hydrodynamic tests.
- The Tilt-Pour Furnace Development Team, for a new plutonium pyrochemical approach that reduces transuranic waste by about 70 percent.



NNSA Weapons Excellence awards were also given for work performed in 2003 to:

- William McLean, for developing time-, temperature-, and pressure-dependent models for corrosion in nuclear weapon pits and secondaries.
- The JASPER planning and commissioning team. The first plutonium (Pu) shot on JASPER produced the highest measured shock pressure in Pu and ultimately the most accurate dynamic high-pressure data ever taken for Pu.
- The W62 Detonator Investigation Team from Livermore and Sandia national laboratories, which investigated detonator aging characteristics and developed and qualified new tests.
- The Piano Subcritical Experiment Team, for using the most complex diagnostics of any subcritical experiment to date.
- The Post-Shot Cleanup Team at Site 300's Contained Firing Facility, for meeting stringent safety requirements for the Chronic Beryllium Prevention Program during post-shot operations inside the test chamber.

ASM International awarded its 2005 Henry Marion Howe Medal to Bassem El Dasher for a paper entitled "Statistically Representative Three-Dimensional Microstructures Based on Orthogonal Observation Sections," which appeared in *Metallurgical and Materials Transactions A*. This work is benefiting the Yucca Mountain Project (see p. 29).



Jim Berryman was awarded the 2005 Maurice A. Biot Medal of the American Society of Civil Engineers for his contributions in poromechanics, granular materials, random composite media, tomography and inverse problems, and seismology.

The Society of Automotive Engineers honored William Pitz and Charles Westbrook with a 2003 Arch T. Colwell Merit Award. Their paper, "Effects of Oxygenates on Soot Processes in DI Diesel Engines: Experiments and Numerical Simulations," was co-authored with scientists at Sandia National Laboratories. The paper was one of 11 honored in 2005.

Two teams won Lawrence Livermore's annual Science and Technology awards, the Laboratory's highest award for achievement in science and technology. One group developed BAMS for real-time identification of biological hazards. The other award was for the NIF Early Light Campaign, which demonstrated the individual beam performance of the NIF laser and its utility to perform experiments.

The Alameda County Women's Hall of Fame lauded Computation associate director Dona Crawford as Outstanding Woman of the Year.



Veteran molecular biologist Jim Felton was reappointed by Governor Arnold Schwarzenegger to the Carcinogen Identification Committee of the State Science Advisory Board.

Tom Isaacs was one of only two non-Canadians that served on the Canadian Nuclear Waste Management Organization's Assessment Team, which analyzed options for disposition of Canada's spent nuclear fuel.

Mike Newman was presented with the Commander's Award for Civilian Service by the U.S. Army for his work during two stints in Iraq. The award citation commended Newman for exceptional service as lead systems engineer and architect for the Persistent Threat Detection System from February to November 2004.

The Laboratory's effort to eliminate waste received two Pollution Prevention awards from DOE/NNSA. One was related to the disposal of transuranic waste, and the other was for better characterizing the Laboratory's waste stream to reduce disposal costs (see p. 36).

A former DHS Scholar, Rahul Satija, was one of 32 Americans chosen to be Rhodes Scholars. While at Livermore, Satija worked with the pathogen bioinformatics team on smallpox analysis.

The Laboratory's Competition Shoot Team took top honors at the "Best of the West" Special Weapons and Tactics Competition. The event was a qualifying shoot for the World SWAT Competition.



Two former Ernest O. Lawrence fellows at the Laboratory received the 2004 Presidential Early Career Award for Scientists and Engineers. Wei Cai, now an assistant professor of mechanical engineering at Stanford University, was honored for work performed while he was at Livermore. Joel Ullom received the award for work performed after he left Livermore.

Three of the Laboratory's technical publications were honored at the 2004 Society of Technical Communication (STC) international competition. The *2003 Chemistry and Materials Science Annual Report* won a Distinguished Award. Two other documents each won an Excellence Award: the Chemistry and Materials Science Directorate's careers recruitment brochure and the Laboratory's monthly publication, *Science and Technology Review*.



received the 2005 Pacesetter Award from the international board of STC. The program was started by Terry Gerrill and has been cosponsored since 1999 by the Laboratory and the East Bay Chapter of STC. The students learned how to extract their own DNA at the Edward Teller Education Center.

A literacy program offered to multiethnic, low achieving 11th-grade students in Oakland, California,

Paul Dickinson, president of Keep California Beautiful, received a special award honoring the Laboratory's support in the organization's campaign to promote litter abatement through volunteer projects and education.

Celeste Matarazzo and Rose O'Brien, along with Livermore teacher Janis Turner, completed a 3,815-mile bicycle trip across the United States. They raised more than \$8,000 for the Tri-Valley's Hope Hospice.



After 21 days in a 38-foot sailboat racing across the Atlantic Ocean, Jaime Marian and three crew mates won the Rubicon Antigua Challenge, sailing from the Canary Islands off the coast of Africa to Antigua in the Caribbean. They finished eighth out of 18 boats overall in time, but they won the race because Marian's crew had the smallest boat and never motored throughout the 3,300 nautical miles.

## Laboratory Budget

Most of Livermore's \$1.63-billion budget for fiscal year 2005 was designated for research and development activities in program areas supporting DOE missions.

As a national security laboratory, Livermore is part of DOE/NNSA. The Laboratory's funding largely comes from the NNSA Office of Defense Programs for stockpile stewardship activities. Support for national security and homeland security work also comes from the NNSA Office of Defense Nuclear Nonproliferation, DHS, various Department of Defense sponsors, and other federal agencies.

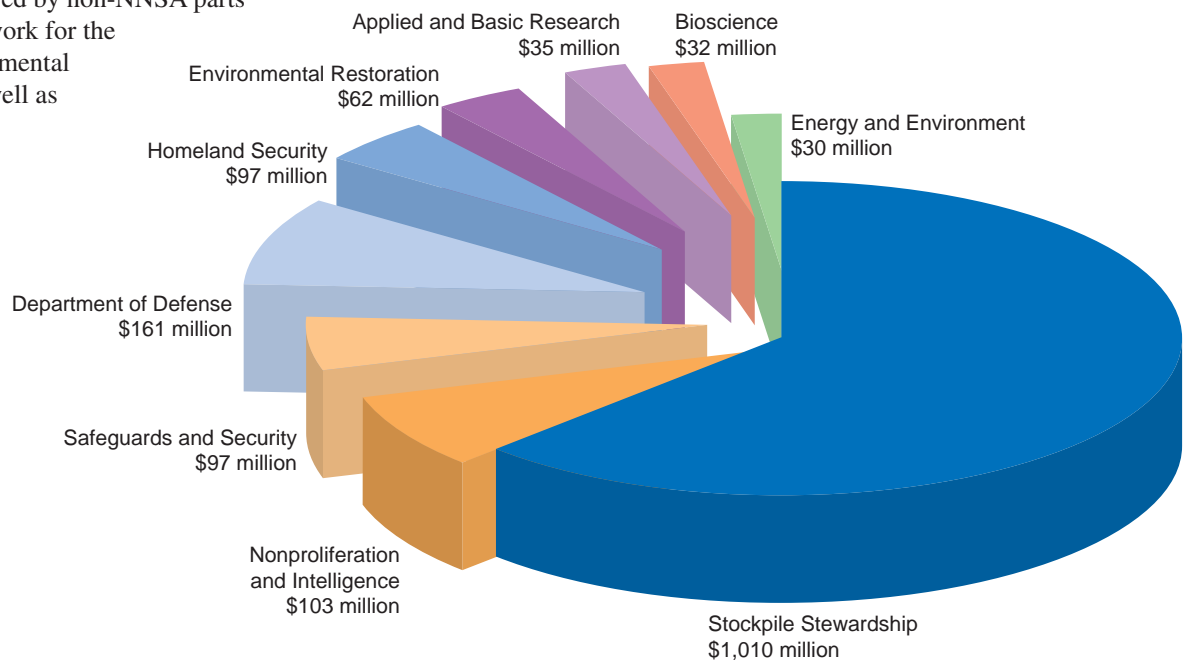
As a multiprogram laboratory, Livermore applies its special capabilities to meet important national needs. Activities sponsored by non-NNSA parts of DOE include work for the Office of Environmental Management as well as research and

development projects for the Office of Science and many other program offices. Non-DOE sponsors include federal agencies (such as the National Aeronautics and Space Administration, Nuclear Regulatory Commission, National Institutes of Health, and Environmental Protection Agency), State of California agencies, and industry.

Many of the Laboratory's research and development activities are pursued for sponsors as partnerships that combine special expertise and capabilities of the Laboratory with those of other DOE laboratories and research universities.



NNSA Administrator Linton Brooks speaks before a Laboratory audience during one of his visits to Livermore.



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One event during Livermore's Week of Science was a discussion of the future of physics, in which current and former science leaders at the Laboratory looked at how the discipline might evolve over the next 20 years.